

Geometry Chapter 10 Practice Test

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- A 1 Which is next in the sequence?
360, 180, 60, 15, ...
A) 3
B) 5

$$\div 2, \div 3, \div 4, \div 5, \dots$$

- C) 3.75
D) 7.5

- H 2 Which are angle measures of a right triangle?
F) $60^\circ, 60^\circ, 60^\circ$
G) $14^\circ, 83^\circ, 83^\circ$

- H) $27^\circ, 63^\circ, 90^\circ$
J) $45^\circ, 55^\circ, 80^\circ$

- A 3 Which are the side lengths of an obtuse triangle?
A) 8, 11, 15
B) 8, 11, 11

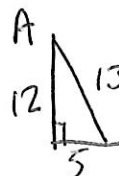
- C) 8, 9, 11
D) 8, 8, 11

$$15^2 > 8^2 + 11^2$$

$$225 > 185$$

- F 4 Three sides of a right triangle measure 5, 12, and 13 units. What is the measure of the smallest angle to the nearest degree?
F) 23°
G) 25°

- H) 65°
J) 67°



$$\sin A = \frac{5}{13}$$

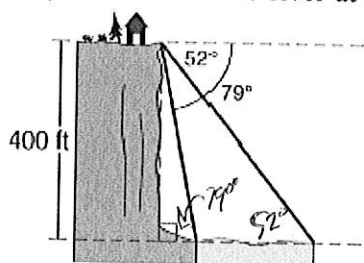
$$m\angle A = \sin^{-1}\left(\frac{5}{13}\right)$$

Name: _____

ID: A

C

- 5 From the top of a canyon, the angle of depression to the far side of the river is 52° . The angle of depression to the near side of the river is 79° . The depth of the canyon is 400 feet. To the nearest foot, how wide is the river at the bottom of the canyon?



$$\tan 52^\circ = \frac{400}{x}$$

$$x = \frac{400}{\tan 52^\circ}$$

$$x = 312.5$$

$$\tan 79^\circ = \frac{400}{y}$$

$$y = \frac{400}{\tan 79^\circ}$$

$$y = 77.8$$

$$d = 312.5 - 77.8$$

- A) 104 ft
B) 204 ft

- C) 235 ft
D) 785 ft

Short Answer

- 1 Express the area of an equilateral triangle in terms of the length s of a side.

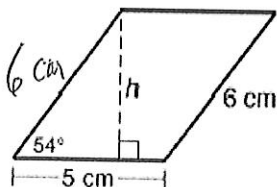
$$\frac{s^2}{4} \sqrt{3}$$



$$h = \frac{1}{2} s \sqrt{3}$$

$$A = \frac{1}{2} b h = \frac{1}{2} (s) \frac{1}{2} s \sqrt{3}$$

- 2 Find the area of the parallelogram.



$$24.27 \text{ cm}^2$$

$$\sin 54^\circ = \frac{h}{6}$$

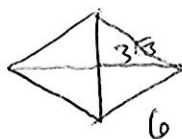
$$h = 6 \sin 54^\circ$$

$$h = 4.85$$

$$A = b h$$

$$(5) 4.85$$

- 3 The longer diagonal of a rhombus is equal to $\sqrt{3}$ times one of its sides. The length of a side is 6 inches. Determine the area of the rhombus. Leave your answer in simplest radical form.



$$18\sqrt{3} \text{ in}^2$$

$$(3\sqrt{3})^2 + x^2 = 6^2$$

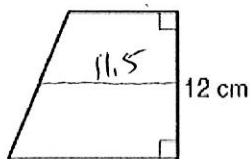
$$27 + x^2 = 36$$

$$x^2 = 9$$

$$x = 3$$

$$\frac{1}{2} (6\sqrt{3})(6)$$

- 4 The midsegment of the trapezoid has a length of 11.5 cm. Find the area of the trapezoid.



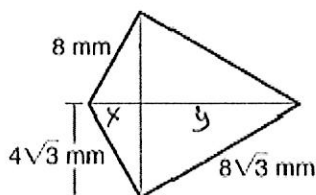
$$138 \text{ cm}^2$$

$$A = \frac{1}{2} h (b_1 + b_2)$$

$$A = \text{Midsegment} \cdot \text{height}$$

$$A = (11.5)(12)$$

- 5 Find the area of the kite.



$$\begin{aligned} x^2 + (4\sqrt{3})^2 &= 8^2 \\ x^2 + 48 &= 64 \\ x^2 &= 16 \\ x &= 4 \end{aligned}$$

$$\begin{aligned} y^2 + (4\sqrt{3})^2 &= (8\sqrt{3})^2 \\ y^2 + 48 &= 192 \\ y^2 &= 144 \\ y &= 12 \end{aligned}$$

$$64\sqrt{3} \approx 110.85 \text{ mm}^2$$

$$\frac{1}{2} (8\sqrt{3})(16)$$

- 6 The area of an equilateral triangle is equal to the area of a trapezoid. The trapezoid has bases with lengths 4 centimeters and 14 centimeters and an altitude of $4\sqrt{3}$ centimeters. Determine the perimeter of the triangle.

$$A = \frac{1}{2} h (b_1 + b_2)$$

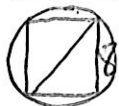
$$\frac{1}{2} (4\sqrt{3})(4+14) = 36\sqrt{3}$$

$$36 \text{ m}$$

$$\begin{aligned} 36\sqrt{3} &= \frac{s^2}{4} \sqrt{3} \\ 144 &= s^2 \\ s &= 12 \end{aligned}$$



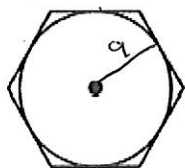
- 7 A circle is circumscribed about a square. The square has side lengths of 8 inches. Find the circumference of the circle in terms of π . Leave your answer in simplest radical form.



$$d = 8\sqrt{2}$$

$$8\sqrt{2} \text{ in}$$

- 8 A regular hexagon is circumscribed about a circle. The circle has a radius of 9 feet. Find the area of the hexagon to the nearest tenth.



$$x = \frac{9}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{9\sqrt{3}}{3} = 3\sqrt{3}$$

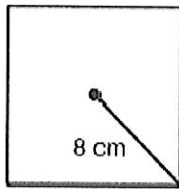
$$s = 6\sqrt{3}$$

$$P = 36\sqrt{3}$$

$$\frac{1}{2} \cdot 9 \cdot 8\sqrt{3} = 280.6 \text{ ft}^2$$

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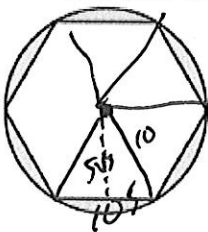
- 9 Find the area of the square.



$$128 \text{ cm}^2$$

$$A = \frac{1}{2}(16)(16)$$

- 10 The radius of the circle circumscribed around the regular hexagon is 10 centimeters. Find the area of the shaded part of the figure to the nearest tenth.



$$P = 60$$

$$a = 5\sqrt{3}$$

$$54.4 \text{ cm}^2$$

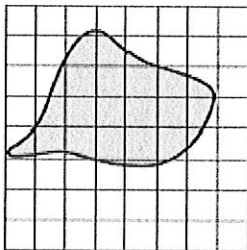
$$A = \frac{1}{2}(60)(5\sqrt{3})$$

$$150\sqrt{3}$$

$$A = 100\pi$$

$$100\pi - 150\sqrt{3} = 54.4$$

- 11 Sod is going to be placed over an irregularly shaped area. If sod costs \$6 a square yard, estimate the cost of the sod needed to cover the area. The grid has squares with side lengths of 2 feet.



$$\text{Around } \$47.00$$

$$60 \text{ ft}^2 \cdot \frac{1 \text{ yd}^2}{9 \text{ ft}^2} =$$

- 12 Find the perimeter of the polygon with vertices $A(-2,3)$, $B(1,5)$, $C(1,0)$, and $D(-2,-2)$. Round your answer to the nearest tenth.

$$17.2 \text{ units}$$

$$AB = \sqrt{3^2 + 2^2} = \sqrt{13}$$

$$BC = \sqrt{0^2 + (-5)^2} = 5$$

$$CD = \sqrt{(-3)^2 + (-2)^2} = \sqrt{13}$$

$$DA = \sqrt{0^2 + (-5)^2} = 5$$

- 13 Find the area of a circle centered at $(1, 1)$ that passes through the point $(-2, 6)$. Round your answer to the nearest tenth.

$$r = \sqrt{(-3)^2 + 5^2} = \sqrt{34}$$

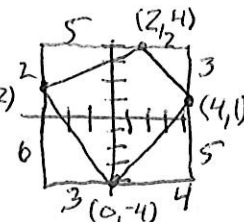
$$A = \pi - (\sqrt{34})^2$$

$$106.8$$

- 14 Find the area of the polygon with vertices $D(4, 1)$, $E(2, 4)$, $F(-3, 2)$, and $G(0, -4)$.

$$29$$

$$(8)(7) - \frac{1}{2}(5)(2) - \frac{1}{2}(2)(3) - \frac{1}{2}(4)(5) - \frac{1}{2}(3)(6)$$



- 15 Determine the effect on the area of a parallelogram if the height is multiplied by 3 and the base is multiplied by 6.

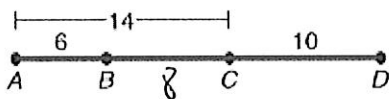
$$18 \text{ times as big}$$

- 16 A circle has a diameter of 5 feet. If the circumference is multiplied by $(2x + 4)$, find the area of the new circle.

$$\pi (25x^2 + 100x + 100) \quad (2x+4)^2$$

$$(4x^2 + 16x + 16)$$

- 17 A point is chosen randomly on \overline{AD} . Find the probability the point is on \overline{BC} or \overline{CD} .



$$0.75$$

$$\frac{8+10}{14+10} = \frac{18}{24}$$

- 18 A weather channel covers local weather 6 times per hour for a period of 2 minutes. If you turn to the weather channel 5 times, predict how often you will catch the local weather.

$$\frac{6 \cdot 2}{60} = \frac{12}{60} = \frac{1}{5}$$

$$\text{Once}$$

$$\frac{1}{5}(5)$$